National Weather Service Spring Flood Outlook

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National Weather Service – Omaha, NE

March 12, 2020

What's change since the last outlook

- Dry weather has dominated the area since the last outlook on February 27th.
- In addition, the snowpack has melted, in a orderly fashion, due to very warm weather the past two weeks.
- All of this has acted to diminish, but not eliminate, the flood threat for many areas.
- Along the Missouri River the flood threat remains **above-normal** due to pre-existing conditions related to soil moisture and river flows.
  - This threat remains highest at the Platte River confluence and areas downstream.

Upfront Information

- There remains a general **above-normal risk** for spring flooding this year, this is due to the following factors:
  - Elevated soil moisture
  - Above-normal streamflows

- Flooding this spring will be largely dependent on the location and intensity of additional precipitation and thunderstorms.

- This is the final outlook for the season.

Upfront Information

- The rivers of most concern continue to be:
  - **Missouri River**
    - Below Sioux City to Omaha
      - There is slightly increased risk of reaching flood stage.
    - Below the Platte River
      - There is a **high likelihood** of reaching minor flood stage.
      - There is an increased risk, greater than 30-40% chance, of reaching moderate flood stage.

Upfront Information

- Though the threat has diminished slightly, other rivers of concern are:
  - **Big Blue River (below Surprise and above Beatrice)**
  - **Wahoo Creek (below Sand Creek)**
  - **Shell Creek**
  - **N.F. Elkhorn River**
  - **Nishnabotna River (West and East)**

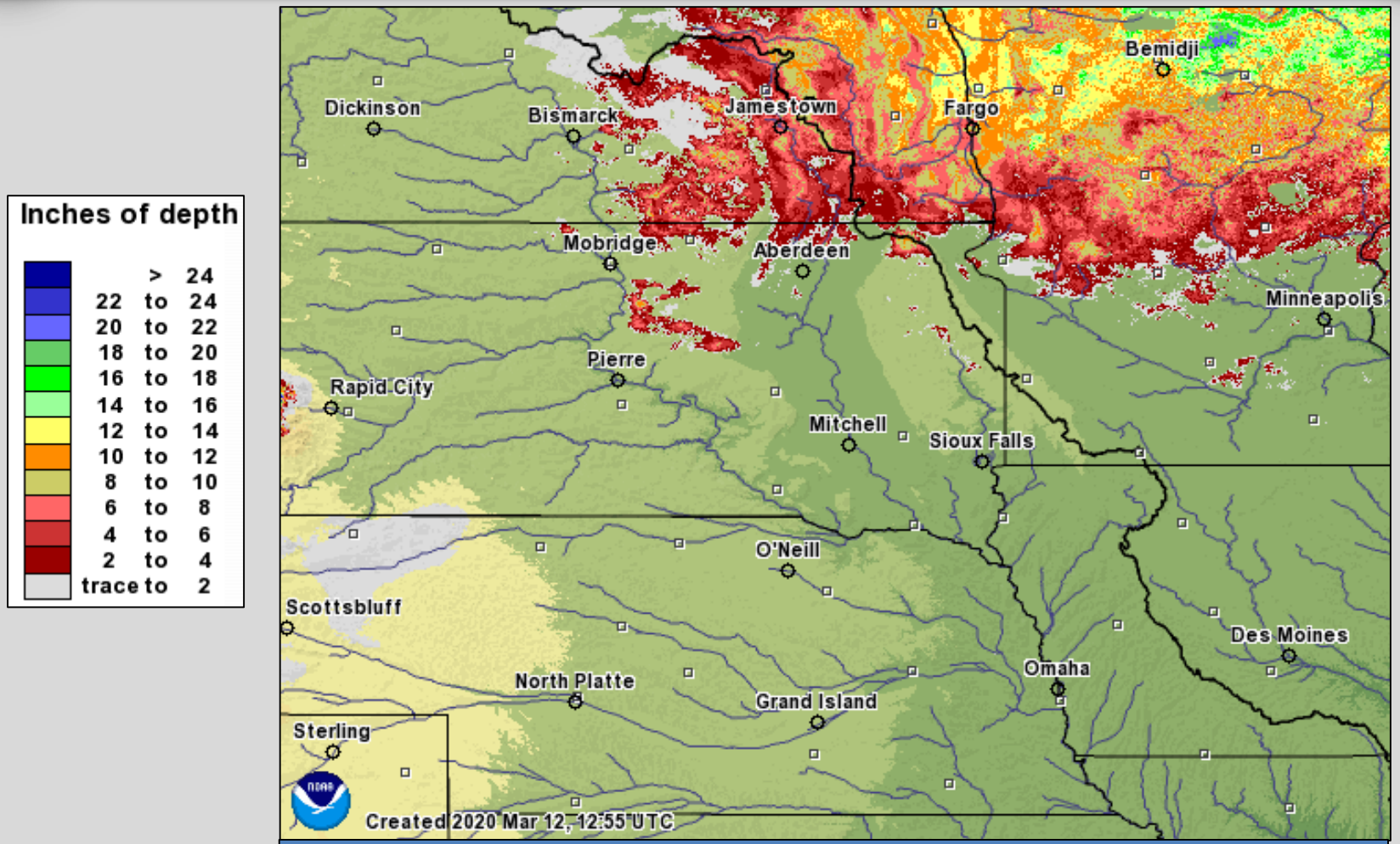
Spring Flood Outlook Factors

As of March 12th

Flood Risk Contribution Factor	Contribution to Flood Risk
Snowpack (North and South Dakota)	Below-Normal Risk
Snowpack (in Nebraska and Iowa)	Below-Normal Risk
Snowpack (Mountains)	Normal Risk
Soil Moisture	Much Above-Normal Risk
Streamflow	Above-Normal Risk
Frost Depth	Below-Normal Risk
Precipitation Outlook	Normal Risk

The following slides provide additional details for each flood risk factor and information on specific river basins.

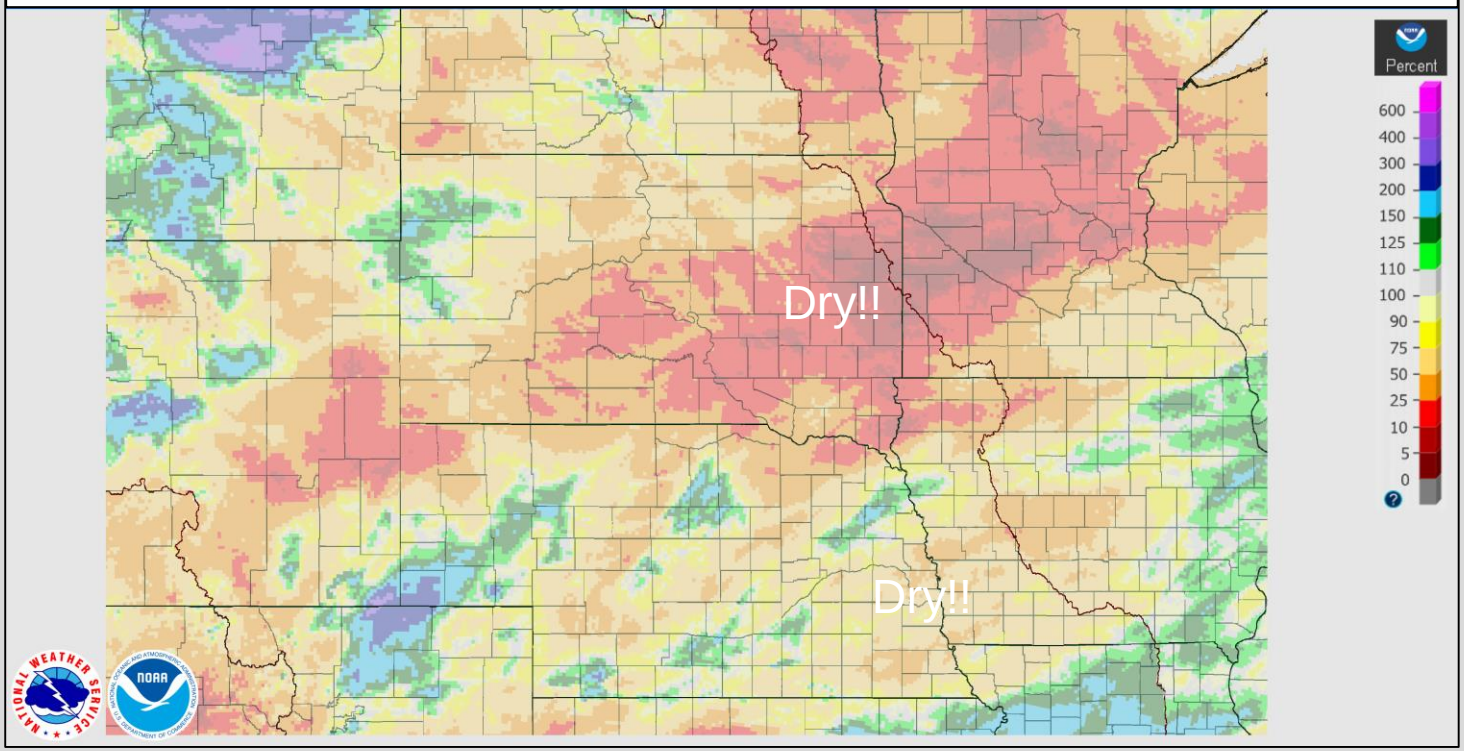
Plains Snowpack



The majority of the Plains snowpack has melted, though a small amount remains in the upper James River basin in North Dakota.

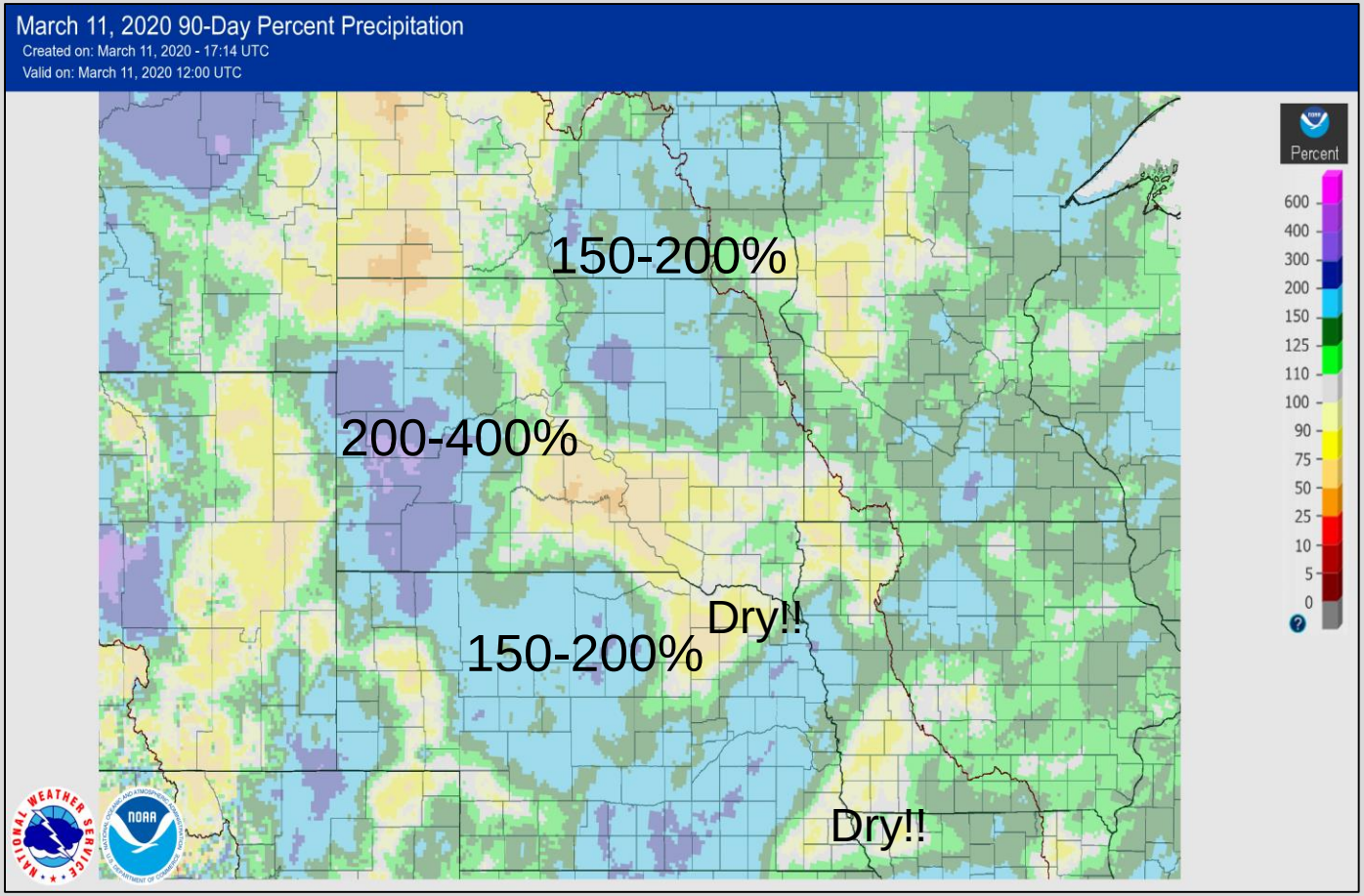
Precipitation (since the last outlook)

Past 14 Days of Precipitation



- Over the past 14 days, there hasn't much precipitation in eastern Nebraska, western Iowa or eastern South Dakota.
- This has been to our benefit and has had a positive effect on the flood threat.

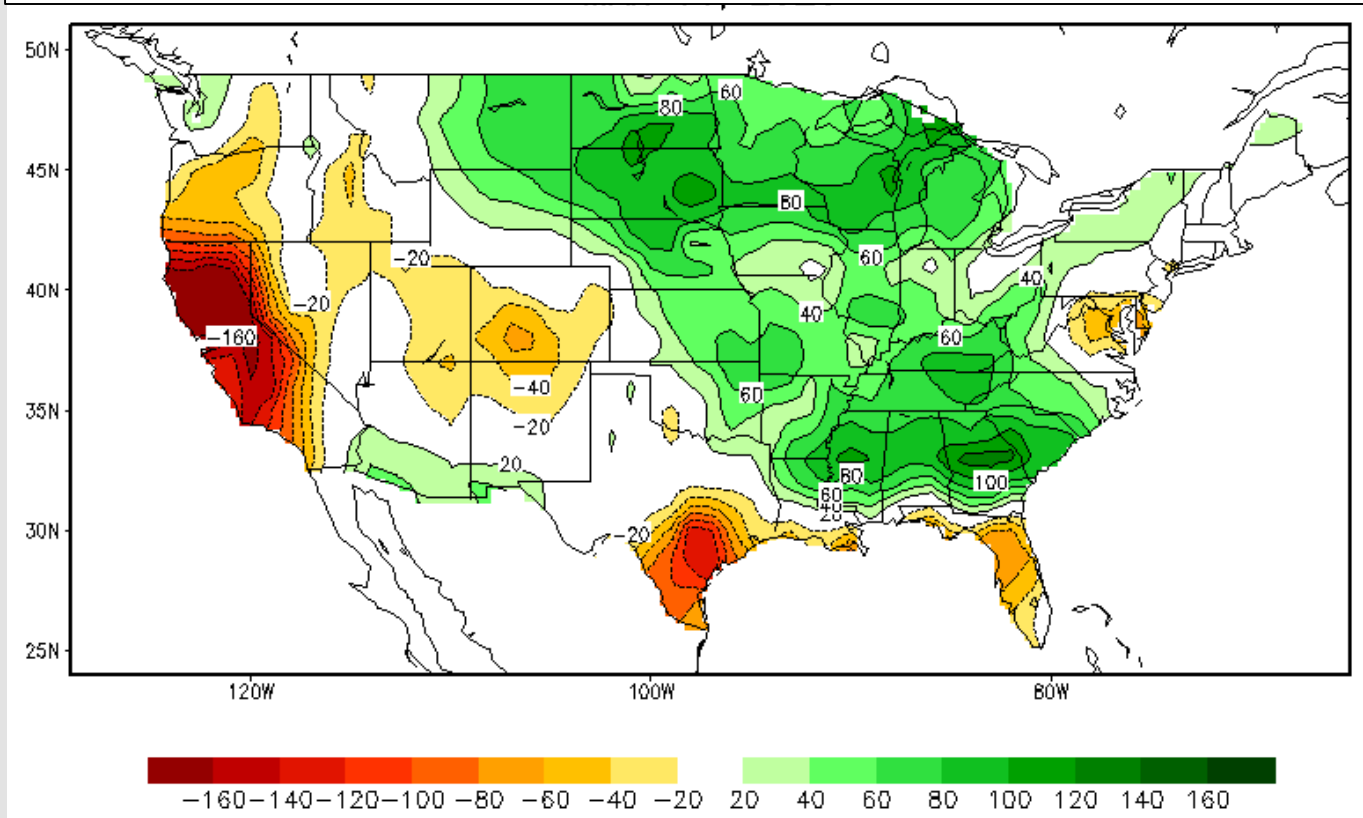
Winter Precipitation (compared to normal as a percentage)



- Precipitation the past three months has been 150-200% above-normal in some areas.
- Though pockets of drier soil exist, this past precipitation has led to an higher than normal soil moisture, mainly over the Dakotas.

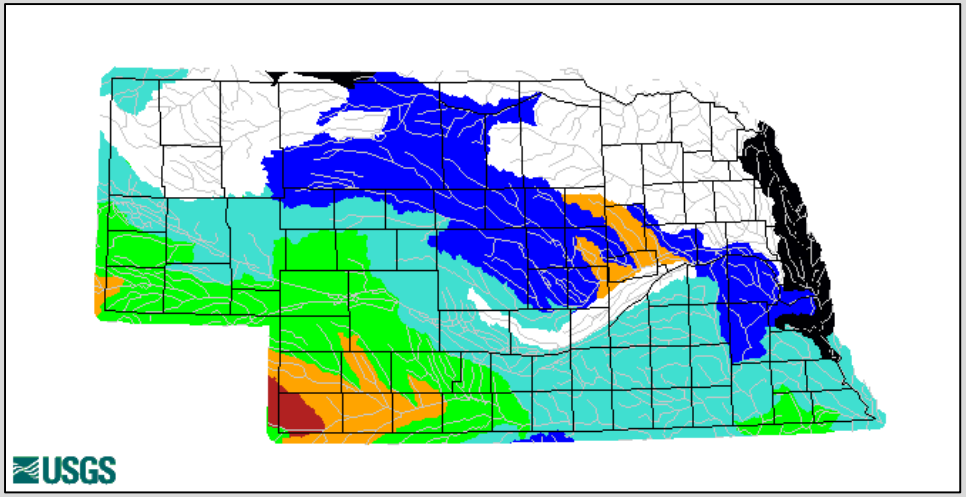
Soil Moisture

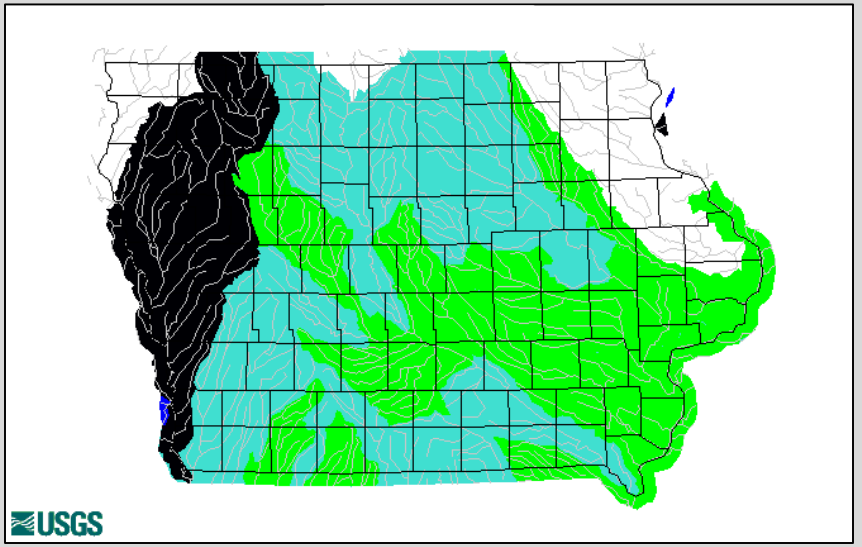
Soil moisture values are elevated for a large portion of Nebraska and western Iowa. Values are even higher into the Dakotas which further elevates the flood threat for the Missouri River.

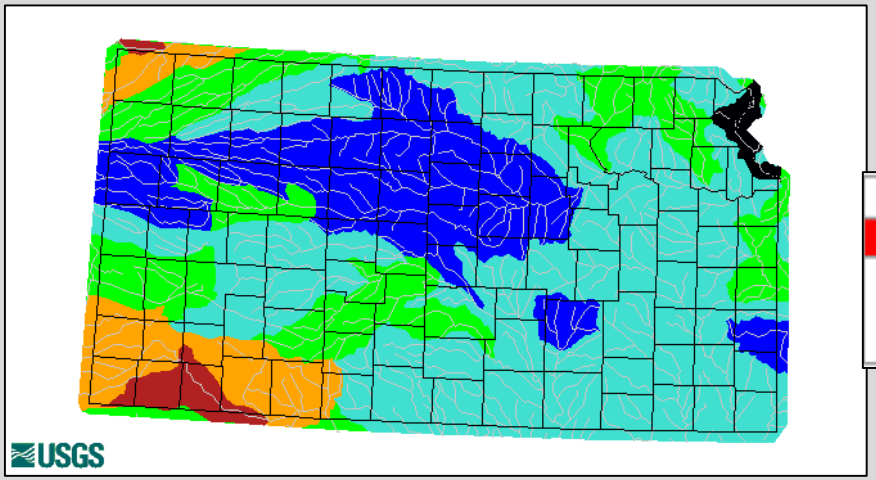


Current Streamflow

River levels remain well above normal and haven't changed much since the last outlook.

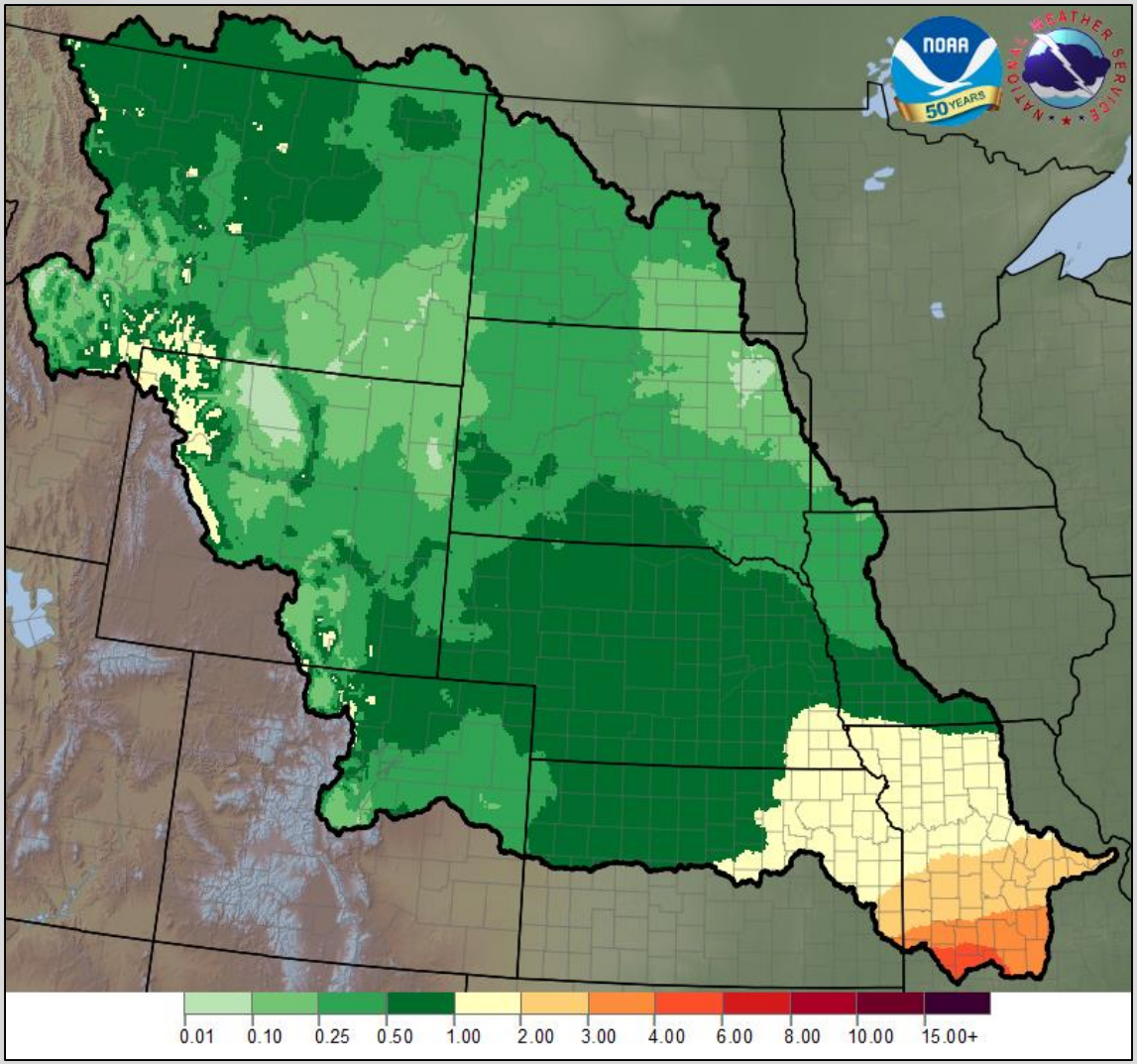






Explanation - Percentile classes							
Low	<10	10-24	25-75	76-90	>90	High	No Data
	Much below normal	Below normal	Normal	Above normal	Much above normal		

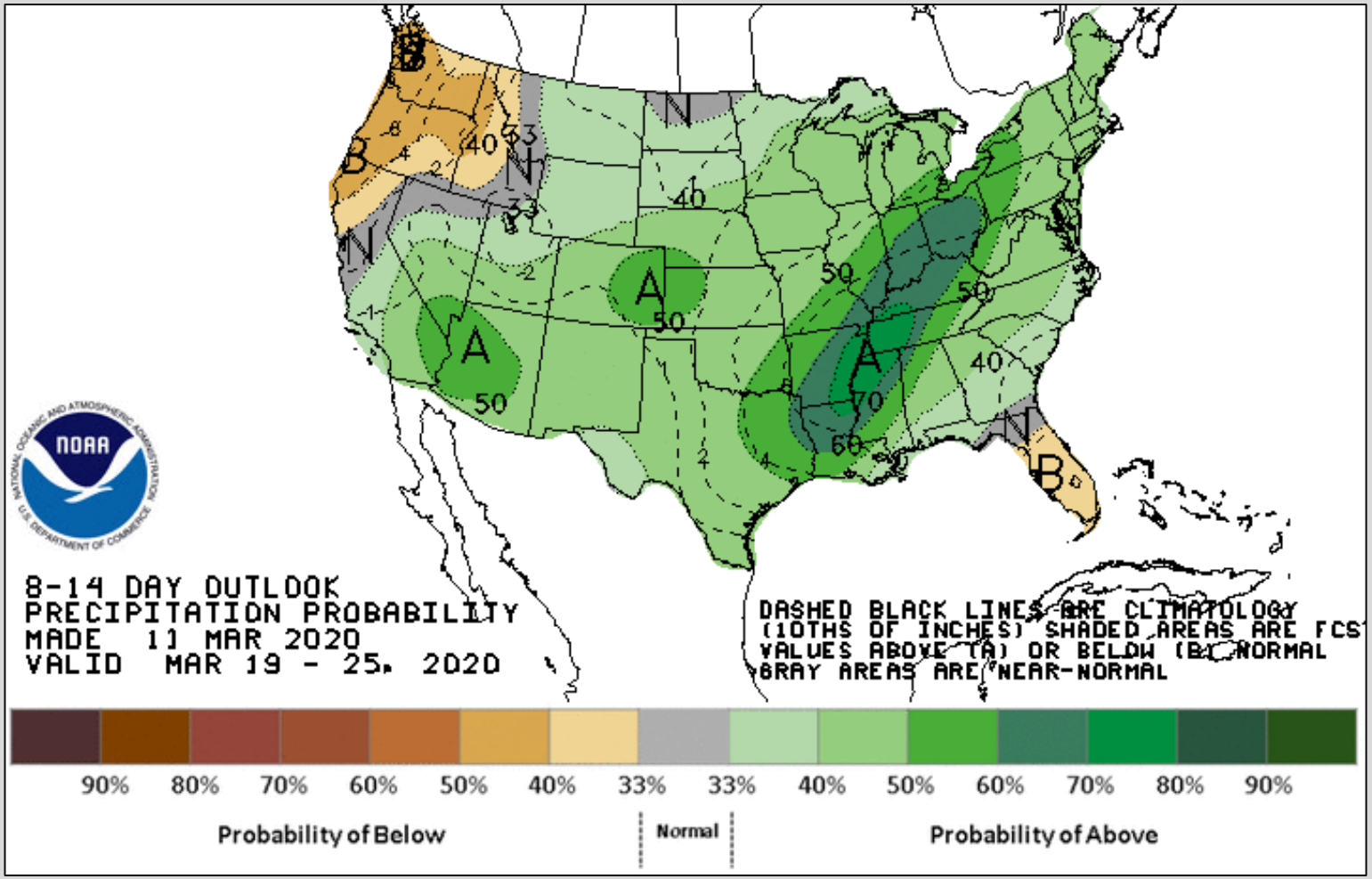
Precipitation over the next 7 days



- Over the next 7 days, areas of Nebraska and northern Kansas will see some precipitation.
- At this point, there are no indications of heavy rain.

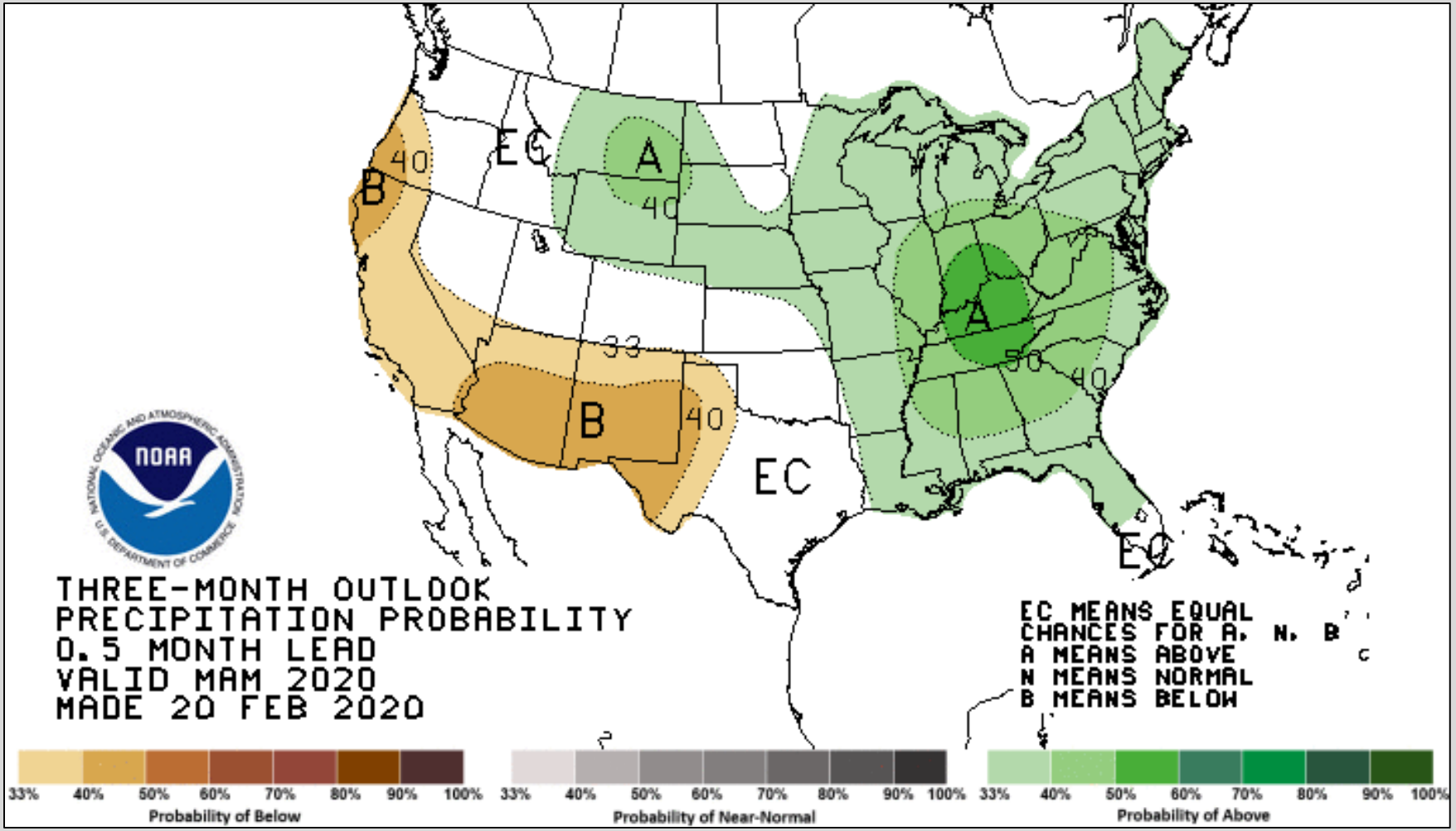
Weather Outlook

8-14 Day Outlook



Precipitation will be above-normal.

Long Range Weather Outlook



Precipitation will remain above-normal for much of the Spring.

Ice Jam Threat

Little if any river ice remains leading to a low to zero ice jam threat.

Missouri River Flood Risk

As of March 12th

Missouri River	Spring Flood Risk
Sioux City to Decatur	Normal
Blair to Omaha	Slightly Above-Normal
Plattsmouth to Rulo	Much Above-Normal

Below the Platte River confluence, it is a near certainty the river will exceed flood stage. Furthermore, through the spring and early summer there is a greater than 40% chance these areas will exceed moderate flood stage. Further upstream, the chance is much less due to less tributary inflow.

Levee Status

As of March 12th

The latest status of levee repairs along the Missouri River is available at the link below.

https://www.nwo.usace.army.mil/Omaha-District-System-Restoration-Team/

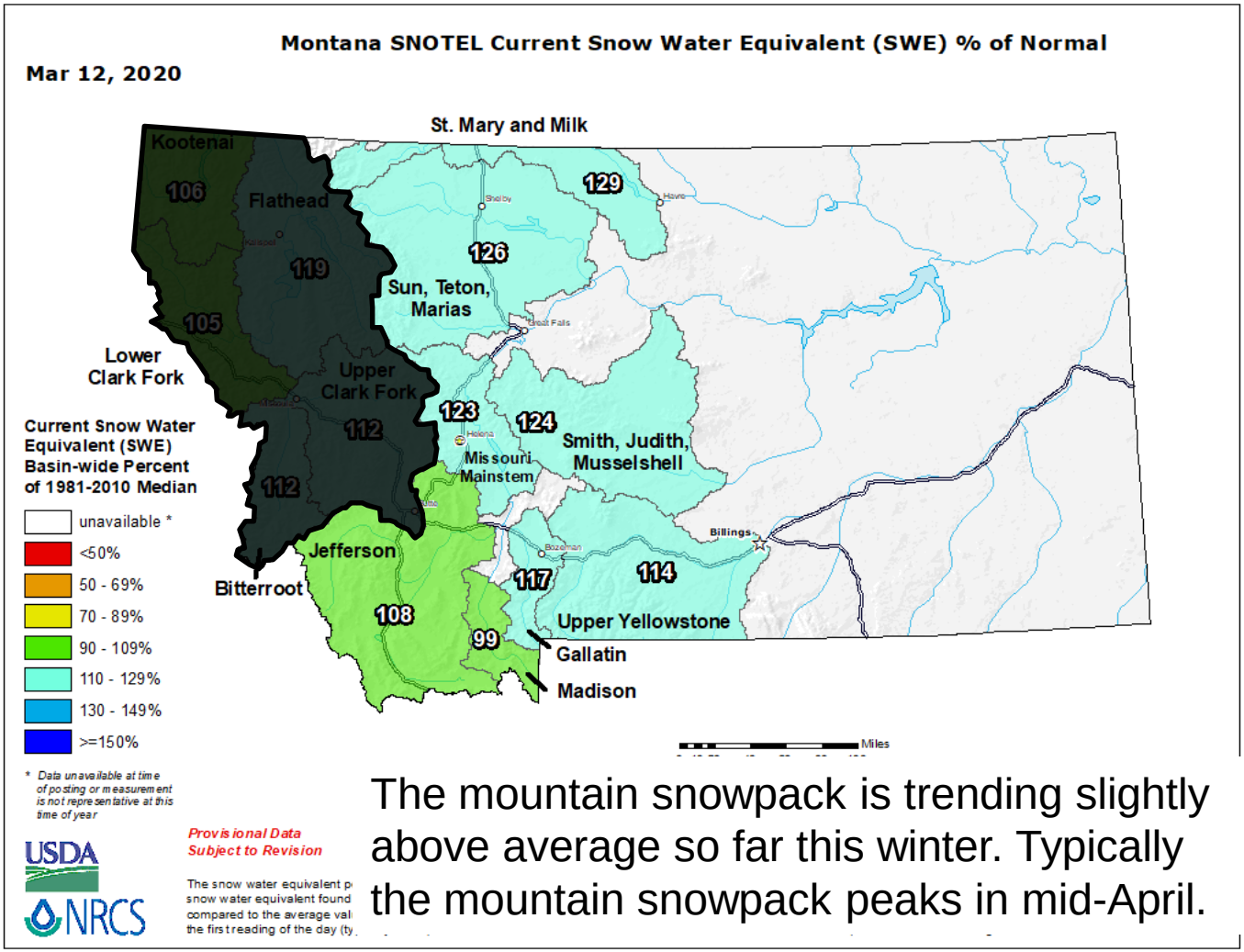
Missouri River Streamflows

As of March 12th

Location	Current Streamflow	Long-term mean	Percent above normal
Decatur	54,600	21,300	256%
Omaha	59,900	24,400	245%
Nebraska City	74,900	35,300	212%
Rulo	77,300	38,600	200%

Along the Missouri River flows are well above-normal. The Corps of Engineers has stated they plan to continue above-normal releases at Gavins Point through the winter

Mountain Snowpack (Missouri River)



The mountain snowpack is trending slightly above average so far this winter. Typically the mountain snowpack peaks in mid-April.

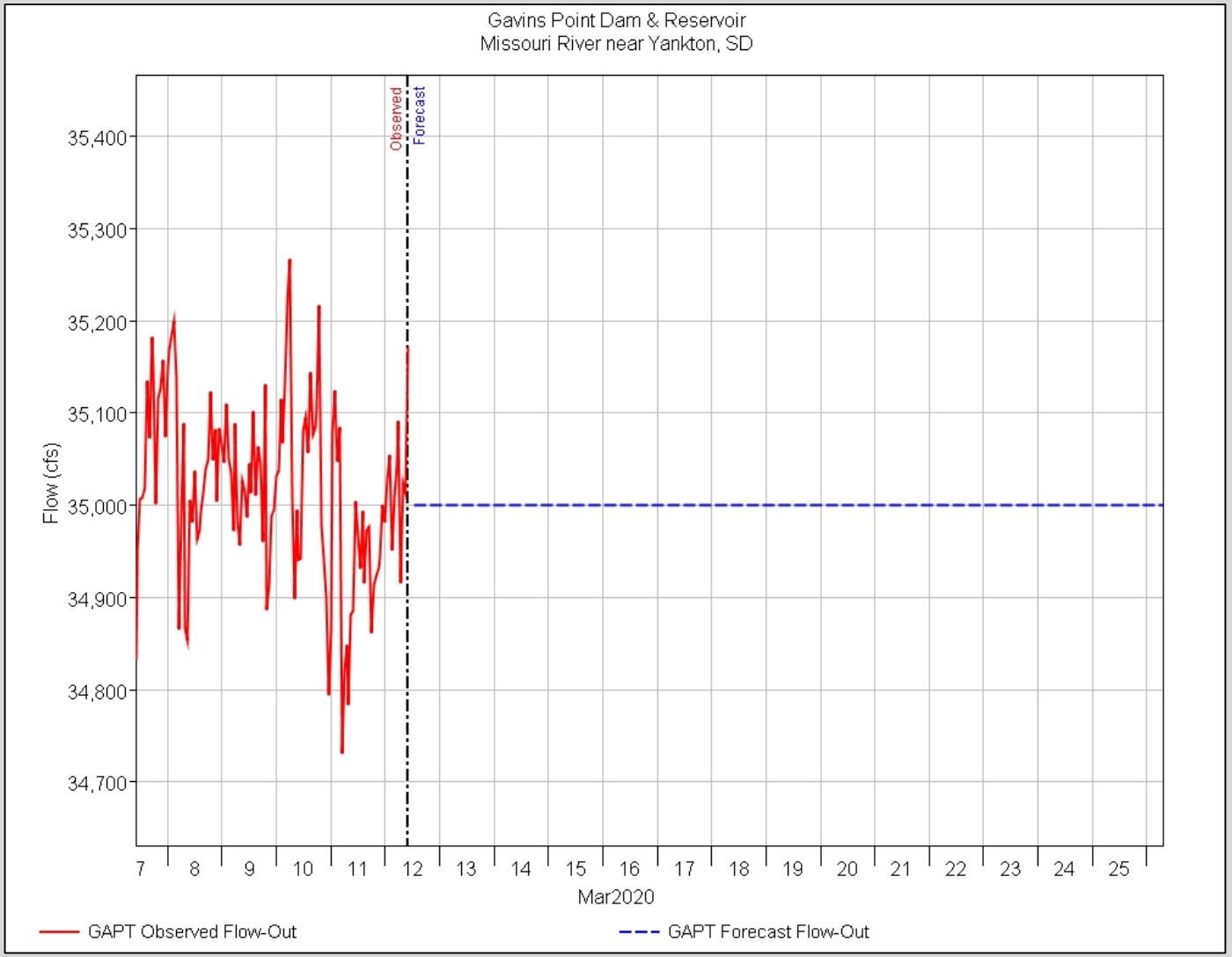
Reservoir Status

- By late January 2020, system storage reached 56.1 MAF, the base of the Annual Flood Control and Multiple Use Zone.

- This means that all stored flood waters from 2019 have been evacuated.

- The Gavins Point winter release is being kept higher than normal through the winter. See the next slide for the Gavins Point forecast.

Gavins Point Forecast



Niobrara River Flood Risk

As of March 12th

Niobrara River	Spring Flood Risk
Verdel to Missouri River	Normal

Though some river ice may remain in the Niobrara, the overall flood threat has diminished the past two weeks due to warm weather and a general lack of precipitation.

Platte River Flood Risk

As of March 12th

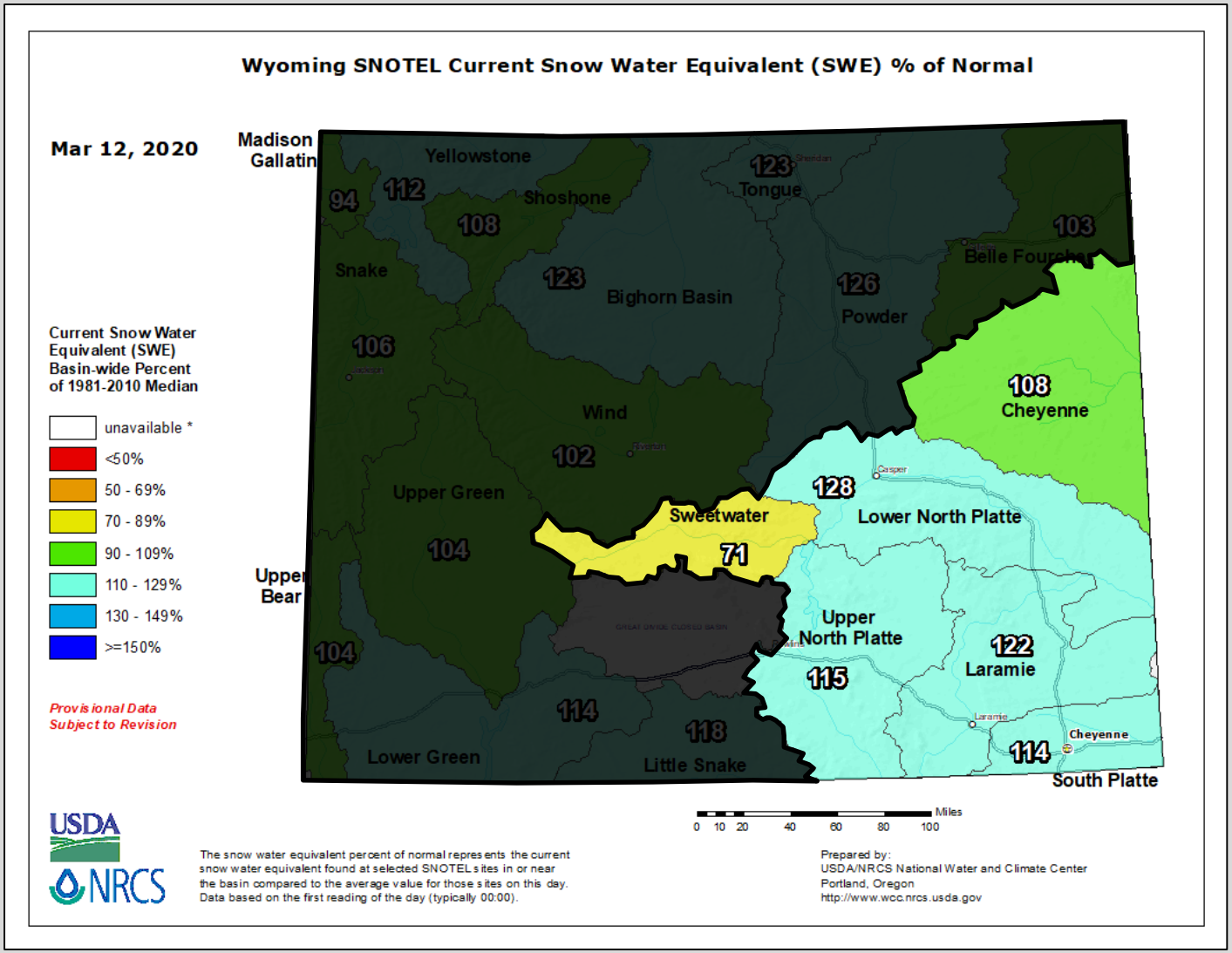
Platte River	Spring Flood Risk
Kearney to Columbus	Normal
Columbus to Missouri River	Slightly Above-Normal

Thus far, mountain snowpack for the Platte River is trending above-normal.

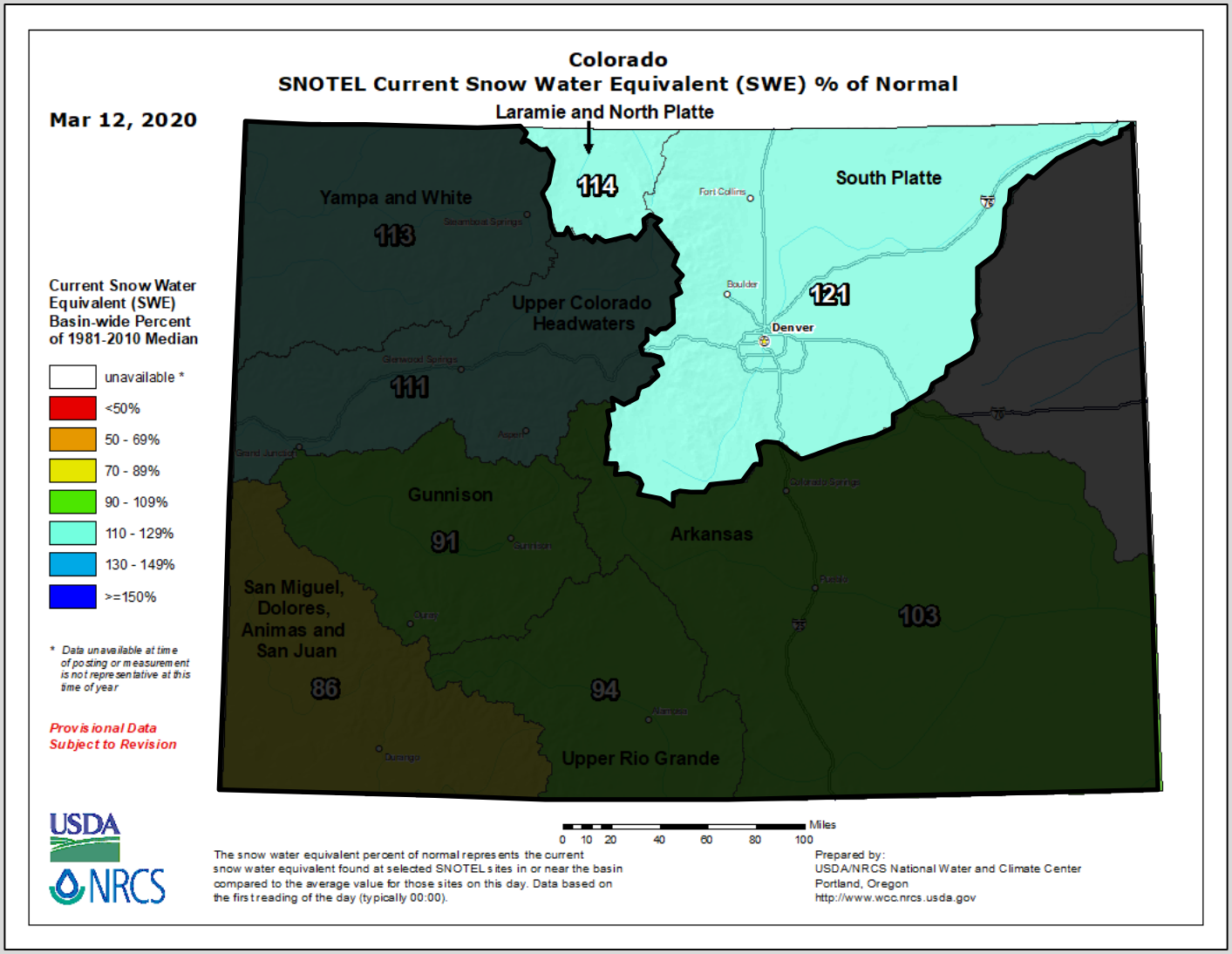
Areas where levee breaches remain are especially vulnerable this year given the higher than normal river levels. Levee repair status updates are available via the link below.

https://www.nwo.usace.army.mil/Omaha-District-System-Restoration-Team/

Wyoming Mountain Snowpack (Platte River)



Colorado Mountain Snowpack (Platte River)



Loup River Flood Risk

As of March 12th

Loup River	Spring Flood Risk
Genoa to Columbus	Normal

Elkhorn River Flood Risk

As of March 12th

Elkhorn River	Spring Flood Risk
Neligh to the Platte River	Normal

Salt Creek Flood Risk

As of March 12th

Salt Creek	Spring Flood Risk
Roca to the Platte River	Normal

The primary flood threat along Salt Creek are areas near and below the confluence with Wahoo Creek, near Ashland.

Big Blue River Flood Risk

As of March 12th

Big Blue River	Spring Flood Risk
Surprise	Normal
Below Surprise to DeWitt	Above-Normal
Beatrice to Barneston	Slightly Above-Normal

The elevated river threat can be attributed mostly to above-normal soil moisture across the basin. The threat is higher from Seward to DeWitt due to higher tributary flows.

Flood Risk for Iowa Rivers

As of March 12th

Spring Flood Risk	
Maple River	Normal
Little Sioux River	Normal
Soldier River	Normal
West Nishnabotna – Hancock	Slightly Above Normal
West Nishnabotna – Randolph	Slightly Above Normal
East Nishnabotna – Red Oak	Slightly Above Normal
Nishnabotna - Hamburg	Slightly Above Normal
Nodaway River - Clarinda	Normal

Flood Risk for other Nebraska Rivers

As of March 12th

Spring Flood Risk	
Ponca Creek	Slightly Above-Normal
Niobrara River	Normal
North Fork Elkhorn River	Above-Normal
Shell Creek	Normal
Logan Creek	Normal
Maple Creek	Normal
Wahoo Creek	Normal

The elevated river threat areas can be attributed mostly to above-normal soil moisture across the basin.

Flood Risk for other Nebraska Rivers

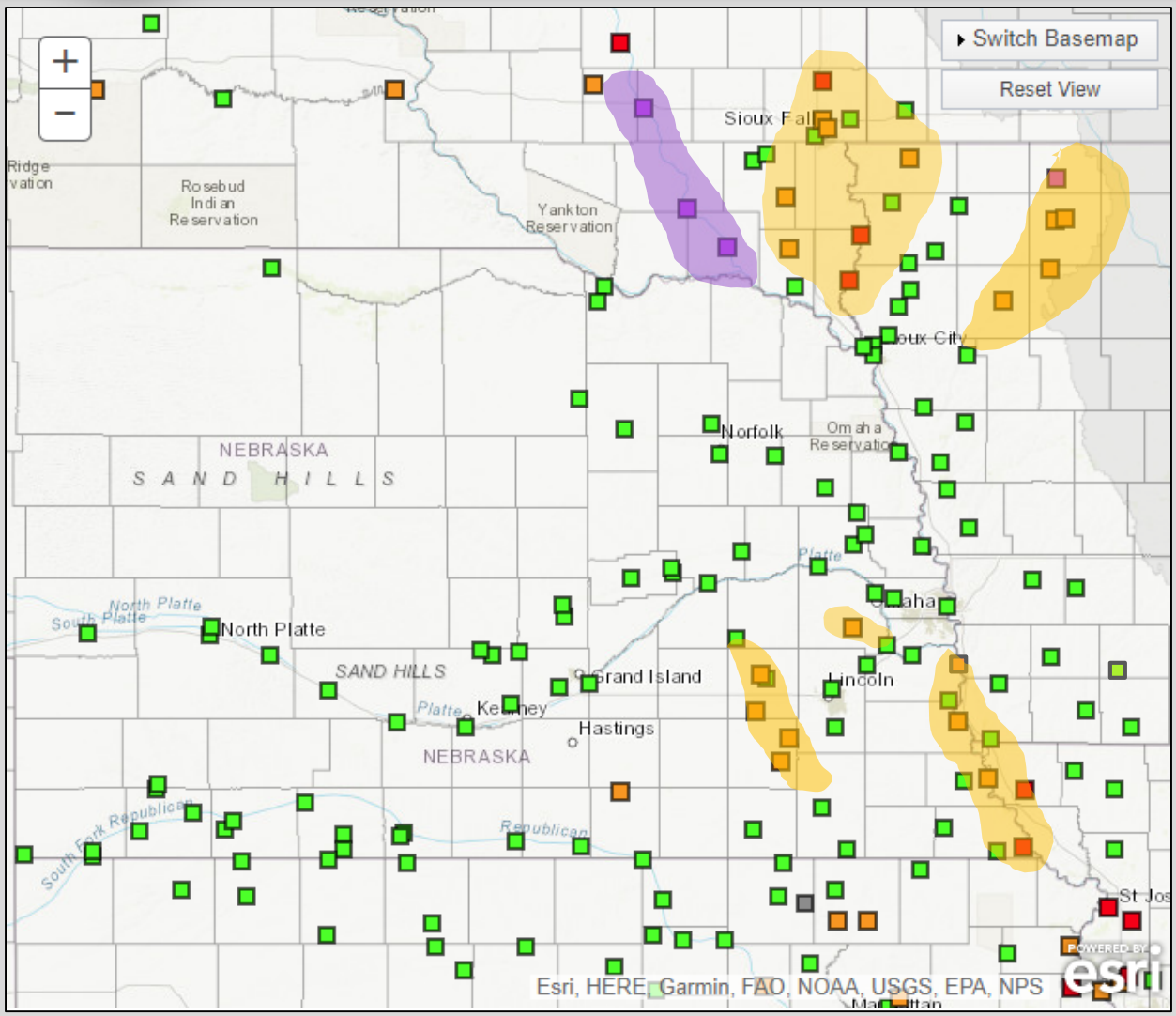
As of March 12th

Spring Flood Risk	
Lincoln Creek	Above-Normal
West Fork Big Blue River	Normal
Turkey Creek	Above-Normal
Little Blue River	Normal
Weeping Water Creek	Normal
Little Nemaha River	Normal
North Fork Big Nemaha	Normal

The elevated river threat areas can be attributed mostly to above-normal soil moisture across the basin.

Nebraska Flood Outlook

March through early June 2020



Orange: Increased chance for minor flooding

Red: Increased chance for moderate flooding

Purple: Increased chance for major flooding

Summary

- **Overall flood risk this spring:**
  - Though the threat has diminished the past two weeks, there remains an above-normal risk for flooding this spring, especially along the Missouri River.
  - Flooding this spring will be largely dependent on the location and intensity of additional precipitation and thunderstorms.
  - The main contributors to this threat are high soil moisture and elevated river levels from 2019.

National Weather Service
Spring Flood Outlook

For questions & additional information:

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